

# Honeywell Burdick & Jackson®

## Packaging Guide

### Tracing our history

#### Table of contents

Traditional Packaging Options	2	SSPDS Dispensing and Accessories	15
Anhydrous Solvent Packaging	2	SSPDS Installation and Operation	20
Alternative Packaging	3	SSPDS Round-Trip Program	21
NOWPak® and NOWPak II Containers	4	SSPDS Support	22
NOWPak and NOWPak II Dispensing Options	7	Custom Packaging and Connections	23
Stainless Steel Pressure Dispense System (SSPDS)	11	HandleLock® B-Jacket®	24



Honeywell Burdick & Jackson®, a leading manufacturer of high purity solvents, DNA/RNA reagents and chromatography columns and accessories, was founded by Orel Burdick and Bill Jackson in 1959. Burdick and Jackson recognized the need for high purity solvents suitable for use in emerging analytical techniques such as gas chromatography and high performance liquid chromatography. The company set about developing the technology and processes that led to the introduction of B&J Brand® solvents, the first commercially available high purity solvents.

Over time, Burdick & Jackson has expanded its portfolio of consistent, high purity solvents to meet the requirements for applications ranging from the most demanding LC-MS, HPLC and GC analyses to general use applications requiring an ACS grade of solvent. To address the market for oligonucleotide synthesis, our BioSyn® line of DNA/RNA solvents and reagents are processed to exacting high purity and low water content specifications. Burdick & Jackson's line of chromatography columns features our Inert II SPE columns, which are specially treated to be inert to solvents yet have the added safety and lower cost of plastic. The Honeywell LabReady® line of HPLC and LC-MS grade solvent blends are produced using our proprietary blending technology.

Burdick & Jackson implements Leading manufacturing techniques at its ISO 9001 certified facilities, including Six Sigma Plus methodology and the Honeywell Operating System. These stringent approaches, coupled with

proprietary packaging techniques, result in delivery of products known for their outstanding purity and lot-to-lot consistency. Products are available in packaging suited for lab scale through production applications.

Today, as part of Honeywell, Burdick & Jackson offers an extensive global network of resources and support. Burdick & Jackson's Technical Service experts are available to assist with product selection, delivery and dispensing.

For more information including health and safety information and to obtain Material Safety Data Sheets (MSDS) and Certificates of Analysis please visit Burdick & Jackson on the web at: [www.honeywell.com/burdickandjackson](http://www.honeywell.com/burdickandjackson).

All statements, information and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty or responsibility of any kind, expressed or implied. Statements or suggestions concerning possible use of products or formulations are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should not assume that all safety measures are indicated or that other measures may not be required.

[www.honeywell.com/burdickandjackson](http://www.honeywell.com/burdickandjackson)

**Honeywell**

# Traditional Packaging Options

Honeywell Burdick & Jackson® solvents are available in a variety of traditional packaging options that are suitable for lab scale through production applications.

## Standard Glass Bottles

Burdick & Jackson solvents are packaged in several sizes of glass bottles, the industry standard for high-purity solvents because of their amber color and inert quality. These containers are easily handled, occupy minimal bench space and can be readily connected to the tubing assemblies of lab equipment like HPLC instruments and DNA/RNA instruments.

## Metal Cans and Drums

Burdick & Jackson 19L cans and 204L drums have a solvent-resistant internal coating that provides a superior package compared with unlined cans and drums. This coating guards against rust particle formation and the introduction of contaminants commonly found

in ordinary cans and drums. The 19L Burdick & Jackson cans have a convenient handle and a splashless pour spout that is resealable to maintain solvent purity. The 204L drums are equipped with 3/4" and 2" tapered pipe thread fittings. Numerous systems are available to dispense solvent from either of these containers.



## FOR MORE INFORMATION

See HandleLock® B-Jackets® as secondary containment for 4L glass solvent bottles.



# Anhydrous Solvent Packaging

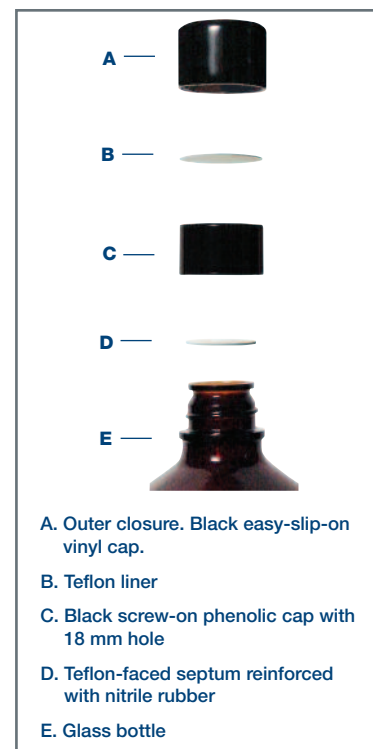
## Anhydrous Solvent Glass Bottles

The anhydrous solvent line is packaged in specially designed septum-sealed bottles to maintain low water content and ensure product integrity. Convenient packaging features a double closure, which includes an easy-slip-on vinyl cap with a Teflon® liner and screw-on phenolic cap with an 18 mm hole. The large septum surface allows for easy access as well as enough space for repeated punctures.

How to use Burdick & Jackson's Anhydrous Solvent Bottle Assembly:

1. Remove outer closure.
2. Fill a dry syringe with dry inert gas (argon or nitrogen).
3. Pierce the septum with the syringe. Use a fresh location each time to prolong product quality.
4. Push the gas from the syringe into the bottle, then slowly withdraw the required amount of solvent.
5. Carefully remove the syringe from the bottle.
6. Dispense the required solvent.
7. After each use, put the outer closure back to further protect the solvent from moisture.

Note: To prolong the quality of the solvent and optimize sealability, use smaller-diameter needles.



# Alternative Packaging

In addition to familiar bottles, cans and drums, Burdick & Jackson offers innovative, returnable containers that maintain solvent purity and reduce packaging waste. These containers provide an environmentally responsible way to enhance lab safety and convenience, especially when using larger solvent volumes. Honeywell Burdick & Jackson also offers comprehensive assistance including:

- regulatory and installation support
- components for direct instrument connection
- serial number container tracking systems
- round-trip shipping programs for easy return of empty containers

## FOR MORE INFORMATION

See Burdick & Jackson Stainless Steel Pressure Dispense System (SSPDS) containers and dispensing options.

## NOWPak® and NOWPak II Containers

High-purity solvent is contained in an inert, specially cleaned liner inside rigid 10L and 20L high-density polyethylene (HDPE) or 20L stainless steel overpacks. Solvents packaged in NOWPak and NOWPak II containers are suitable for high-purity applications, including DNA/RNA or peptide synthesis, liquid chromatography and pharmaceutical manufacturing. The inert, particle-free nature of the liner also makes NOWPak an ideal package for solvents used in HPLC analysis.



## Stainless Steel Pressure Dispense System (SSPDS) Containers

Pressurizable 56L, 200L and 1250L Honeywell Burdick & Jackson Stainless Steel Pressure Dispense System (SSPDS) containers are the ultimate packages for maintaining high solvent purity. Constructed of durable, inert materials, these systems incorporate quick-connect inert gas and solvent couplings for minimal solvent loss and air inclusion when connecting and disconnecting the container at operating pressure. Specially cleaned PTFE hoses and accessories limit the contamination introduced when delivering high-purity solvent from a SSPDS container directly to an instrument or fume hood dispenser.

A recyclable packaging alternative to glass bottles, the NOWPak container maintains solvent purity, increases lab safety and maximizes efficiency when using larger solvent volumes. High-purity solvent is contained in an inert, specially cleaned liner inside a rigid high-density polyethylene (HDPE) or 304 stainless steel overpack (Figure 1).

## Inert, Specially Cleaned PTFE Liners

The inner liner of the NOWPak container is a fluoropolymer compatible with most high-purity solvents. The liners are constructed inside Class 100 cleanrooms and are cleaned using a proprietary method that removes particles down to the sub-micron level. All seams are fusion sealed without applying adhesives, and each liner is thoroughly leak tested before and after insertion into the overpack.

## Two Break-Resistant Overpack Configurations

Two NOWPak overpack configurations are available, providing virtually break-proof secondary containment for the storage and handling of solvents as recommended by OSHA laboratory standards (29 CFR 1910.1450). The HDPE NOWPak overpack is used in dispensing applications requiring intermittent pressurization of less than 10 psig or if the solvent is withdrawn by an HPLC pump or bottletop dispenser. The stainless steel NOWPak II container is designed for applications requiring continuous pressure less than 15 psig, such as direct connection to DNA/RNA and peptide synthesizers. The NOWPak II overpack also safely contains high-vapor-pressure solvents such as pentane and dichloromethane during shipping and storage. Solvent-specific stainless steel overpack fleets are tracked by serial number.

## Solvents in NOWPak Containers

Solvents packaged in NOWPak and NOWPak II containers are suitable for high-purity applications including liquid chromatography, pharmaceutical manufacturing and DNA/RNA and peptide synthesis.

Two high-purity product lines are available in the NOWPak container system.

**B&J Brand®** – For HPLC, gas chromatography, pesticide residue analysis and spectrophotometry.

**Burdick & Jackson BioSyn®** – For biosynthetic applications requiring very low water content.

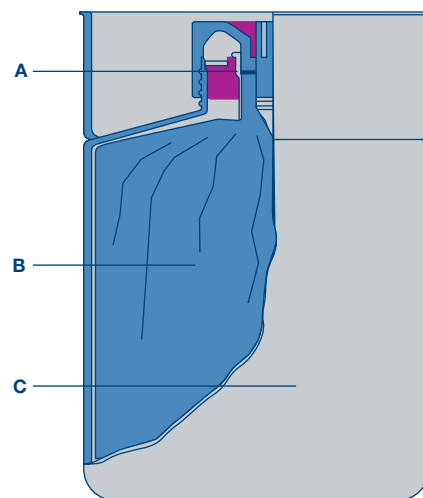
## Improved Lab Safety

Several NOWPak® system features enhance overall lab safety and streamline solvent storage and handling. Break-resistant NOWPak containers reduce the number of glass bottles on benchtops and in fume hoods. Because of its overpack and liner construction, secondary solvent containment is built into this package. Sealed systems formed by NOWPak solvent dispensers and adapters reduce the amount of solvent vapor in the workplace.

## Increased Storage Space and Time Efficiency

More solvent can be stored in a smaller area because 20L NOWPak containers are 61% more space efficient than glass bottles packaged in 4 x 4L cases. Not only is storeroom space maximized when five 4L bottles are replaced by one 20L NOWPak container, but lab instruments such as HPLC units and DNA synthesizers can run five times longer without changing solvent reservoirs. Productivity is greater when less lab time is spent handling solvent containers and instruments can run unattended overnight.

Figure 1. 20L Burdick & Jackson NOWPak Container Diagram.



- A. Polypropylene closure with PTFE seal
- B. Pre-cleaned, inert inner liner
- C. Reusable/recyclable high-density polyethylene overpack

## Sealed Dispensing Systems

With the exception of the pour spout, NOWPak dispensing options prevent the reentry of air into the liner as solvent is withdrawn from the container. Sealed dispensing not only reduces exposure to solvent vapors, it also increases the useful shelf life of solvents. Airborne impurities or other liquids cannot be inadvertently introduced into the container, minimizing the risk of solvent contamination.

## Container Specifications



	4 x 4L Case	20L NOWPak Container*	20L NOWPak II Container
<b>Volume</b>	16 liters 4.2 gallons	20 liters 5.3 gallons	20 liters 5.3 gallons
<b>Overpack Material</b>		High-density polyethylene	Stainless steel
<b>Approximate Weight When Empty</b>	16.0 lbs. 7.3 kg	4.2 lbs. 1.9 kg	16.5 lbs. 7.5 kg
<b>Approximate Full Weight When Containing Methanol</b>	44.0 lbs. 20.0 kg	39.0 lbs. 17.7 kg	52.0 lbs. 23.6 kg
<b>DOT/UN Packaging Specification</b>	UN4G/Y37/S	UN1H1/Y1.9/100	UN1A1/X1.9/300

\* Also available in 10L package size.

Five 4 x 4L cases of solvent create 80 pounds of packaging waste compared to virtually no waste for your lab when you participate in the NOWPak Container Return Program and send the empty containers back to Honeywell Burdick & Jackson.

## Solvent Packaging Waste Reduction

Sixteen liters of bottled solvent generate a total of 16 pounds of corrugated cartons, box inserts and glass bottles that must be removed from a facility and sent to a landfill. Some localities even require bottles to be triple rinsed prior to disposal, creating a RCRA-regulated solvent waste stream. The NOWPak container components can be recycled without triple rinsing, and virtually no packaging waste is produced in your lab when you use the NOWPak Container Return Program. Even if you do not participate in the return program, the NOWPak system generates 75% less packaging waste than 4L glass bottles in conventional shipping cartons.

## NOWPak Container Return Program

Decrease your total operational costs by saving disposal expenses and reallocating the labor currently spent handling and discarding packaging materials. The NOWPak Container Return Program eliminates most packaging waste in your lab. Drained NOWPak containers from qualified customers can be consolidated and sent back to Honeywell Burdick & Jackson with the liners still inside. To ensure solvent integrity, the liners are used only once for high-purity solvent, then responsibly disposed of by Burdick & Jackson. Contact Honeywell Burdick & Jackson Technical Service for additional details on the NOWPak Container Return Program.



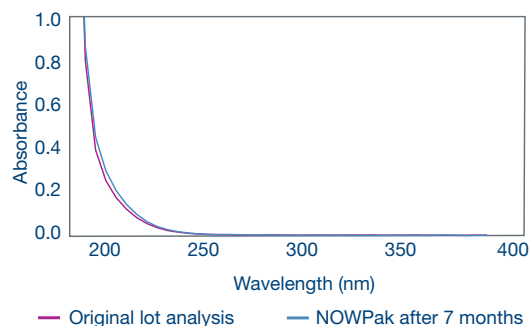
## Solvent Stability in NOWPak® Containers

Laboratory stability studies confirm NOWPak containers maintain solvent lot-to-lot consistency, purity, water content and particulate levels over time. One study shows how solvents packaged in NOWPak containers are ideal for particulate-sensitive applications such as HPLC (Figure 2). Another study shows how B&J Brand® methanol stored in a NOWPak container (Catalog Number NP230-20) for 7 months is unchanged in quality from the original lot analysis (see chart below and Figure 3). Additionally, samples of the same B&J Brand acetonitrile UV lot stored in a NOWPak container (Catalog Number NP015-20) and a glass bottle (Catalog Number 015-4) for 5 months are virtually identical (see chart below and Figure 4).

### B&J Brand Methanol in a NOWPak Container after 7 Months

Test	B&J Specification	Original Lot Analysis	NOWPak Container after 7 Months
Water (by Karl Fischer titration)	<0.05%	0.017%	0.017%
UV Cutoff (1 cm cell)	<205 nm	204 nm	204 nm
Refractive Index	1.3284 ± 0.0004	1.3284	1.3285
Residue (detection limits <1 mg/L)	<1 mg/L	None detected	None detected
GC Purity	>99.9%	99.9+%	99.9+%
GC-ECD (as heptachlor epoxide)	<10 ng/L	Passes test	Passes test

Figure 3. Methanol UV Absorbance



### B&J Brand Acetonitrile UV in a NOWPak Container after 5 Months

	B&J Specification	4L Glass Bottle after 5 Months	NOWPak Container Test after 5 Months
Water (by Karl Fischer titration)	<0.01%	0.004%	0.005%
UV Cutoff (1 cm cell)	<190 nm	189 nm	189 nm
Refractive Index	1.3440 ± 0.0006	1.3440	1.3440
Residue (detection limits <1 mg/L)	<1 mg/L	None detected	None detected
GC Purity	>99.9%	99.9+%	99.9+%
GC-ECD (as heptachlor epoxide)	<10 ng/L	Passes test	Passes test

Figure 4. Acetonitrile UV Absorbance

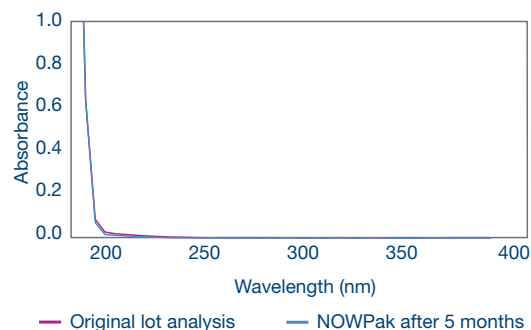
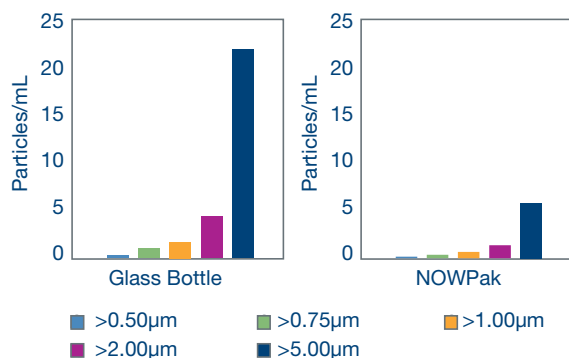


Figure 2. Burdick & Jackson Acetone



## Innovative Dispensing Options

Dispensers for removing solvent from NOWPak containers are constructed of inert, solvent-compatible materials for contaminant-free operation. They have been designed to interface with commercially available dispensing equipment and laboratory instrumentation.

- The NOWPak Solvent Dispense Module provides rapid, un-metered solvent delivery at the touch of a button.
- Piston-style bottle-top dispensers can be used for low-volume, metered dispensing.
- Cap adapters connect NOWPak containers directly to HPLC and GPC instruments as well as peptide and DNA/RNA synthesizers.

If your specific application requires a customized dispenser, Honeywell Burdick & Jackson Technical Service is available to explore modifications to meet your particular requirements.



Burdick & Jackson Solvent Dispense Modules for rapid, high-volume dispensing are mounted on a bracket (top) or a metal stand and adapter plate (right). See Solvent Dispense Modules.

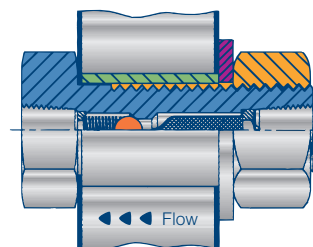


Figure 5. Justrite Pass-Thru Valve Diagram.

## Unique NOWPak Storage Option

Safety is enhanced by storing the NOWPak containers inside a flammable liquid storage cabinet while dispensing solvent. A dispensing cabinet system manufactured by Justrite® is available with pass-thru valves installed in the cabinet wall. The pass-thru valves (Figure 5) are specially designed stainless steel fittings that connect the solvent and pressure tubing from the NOWPak container through the cabinet wall to a dispenser located in a fume hood. The solvent pass-thru valve incorporates a unique, non-contaminating check valve. The inert gas pass-thru contains an integral flame arrester. The entire system with factory-installed fittings is Factory Mutual Research Corporation approved (Report OY6A3.AF).

## Dispenser Mounting Brackets

Hood space is maximized by storing NOWPak containers underneath the fume hood and eliminating the clutter of breakable

glass bottles. Their compact size allows mounting of up to four Honeywell Burdick & Jackson Solvent Dispense Modules or bottle-top dispensers on a bracket. Portable metal stands are also available for mounting up to two dispensers, eliminating the need to permanently attach a bracket to the fume hood wall.

The NOWPak Solvent Dispense Module provides convenient and inert sealed dispensing from NOWPak containers. The Solvent Dispense Module (Catalog Number NP517) contains a gas pressure regulator that delivers adjustable, on-demand inert gas through a cap connector (Catalog Number NP518 or NP519) to the NOWPak or NOWPak II container. Incoming regulated gas pressure of 15 to 55 psig can be used with this system. A manual regulator on the Solvent Dispense Module controls the pressure applied to the inside of the container so that it does not exceed 10 psig for HDPE NOWPak containers or 15 psig for

stainless steel NOWPak II containers. Only inert gases such as nitrogen, helium and argon should be used. Pressurized air is not recommended.

As the outside of the liner is compressed, solvent flows through inert tubing to the dispenser valve. Flow rates can be varied from zero to four liters per minute by changing the amount of pressure applied to the container. When pressed, a toggle valve on the Solvent Dispense Module simultaneously opens the gas valve to pressurize the NOWPak container and the chemical valve to initiate solvent flow. Pressure is applied to the container only during dispensing. When the toggle valve is not engaged, solvent flow is stopped and the container automatically depressurizes. The manual regulator also acts as an overnight shut-off valve. As an additional safety feature, a pressure relief valve on the NP518 or NP519 cap connector ensures the NOWPak container cannot become overpressurized.



Catalog Number NP518

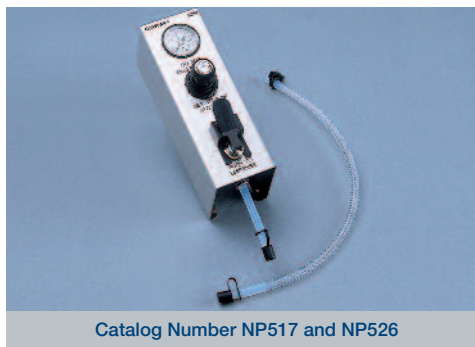
## Solvent Dispense Module Pressure Dispense Connector

Catalog Number NP518 for HDPE NOWPak containers

Catalog Number NP519 for stainless steel NOWPak II containers

The solvent and inert gas tubing and cap assembly connects the NOWPak container to the Solvent Dispense Module. Each consists of:

- A cap connector with a 3/8" PFA elbow solvent fitting, a 1/4" inert gas pressure fitting and a 10 psig (Catalog Number NP518) or 15 psig (Catalog Number NP519) pressure relief valve.
- An FEP diptube sized for either the HDPE NOWPak or stainless steel NOWPak II container.
- A 10' harness of 3/8" FEP solvent tubing and 1/4" nylon pressure tubing.



Catalog Number NP517 and NP526

## Solvent Dispense Module (SDM)

Catalog Number NP517

The Solvent Dispense Module regulates solvent flow as well as gas pressurization and venting of the NOWPak container. The NP518 or NP519 Pressure Dispense Connector is required to complete the Solvent Dispense Module dispensing system.

## Solvent Dispense Module Flexible Extension Nozzle

Catalog Number NP526

The 18" flexible FEP extension nozzle fits over the Solvent Dispense Module dispenser spout to facilitate filling tall or non-standard glassware.



Catalog Number NP528

## Two-Place Mounting Bracket Kit

Catalog Number NP528

This bracket and hardware kit allows up to two Solvent Dispense Module units or bottle-top dispensers to be mounted on a fume hood wall. A four-place dispenser bracket (Catalog Number NP524) is also available.



Catalog Number NP531

## Metal Stand and Adapter Plate for Solvent Dispense Modules

Catalog Number NP531

This portable stand and adapter plate holds up to two Solvent Dispense Modules and does not require drilling holes to mount a bracket. When mounted on the stand, the dispenser spout is 19" above the base.

Cap adapters connect NOWPak and NOWPak II containers directly to analytical and preparative scale HPLC instruments, GPC instruments and other equipment using pumps or vacuum to supply solvent.



## TECHNICAL SERVICE

Contact Honeywell Burdick & Jackson Technical Service at 800-368-0050 for tips on linking a single NOWPak container to multiple pieces of dispensing equipment or instrumentation.



Catalog Number NP500

### Cap Adapter for 1/4" Tubing

Catalog Number NP500 for HDPE NOWPak containers

This adapter is suitable for use with high-flow pump or vacuum applications where sparging is not required. It comes with:

- A cap closure and PTFE adapter with a 1/4" PFA elbow solvent fitting.
- An FEP diptube with a 40-micron stainless steel frit to prevent drips while changing containers.

The 1/4" elbow fitting can be replaced with any standard 1/4" male NPT fitting for adaptation to other tubing sizes.

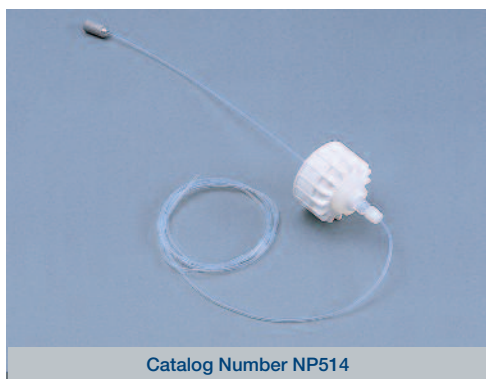


Catalog Number NP512

### HPLC Sparging Adapter

Catalog Number NP512

A standard HPLC 4L bottlecap sparging assembly (not included) can be connected directly to the NOWPak container for feeding single or multiple HPLC and GPC instruments. This adapter consists of a cap closure and PTFE adapter with a 38 mm thread pattern.



Catalog Number NP514

### Cap Adapter with 1/8" Tubing

Catalog Number NP514

This connector is suitable for use with low-flow pump or vacuum applications where sparging is not required. The adapter includes:

- A cap closure and PTFE adapter with an 1/8" PFA solvent tube fitting.
- A 10' piece of 1/8" FEP solvent tubing with a 40-micron stainless steel frit to prevent drips while changing containers.

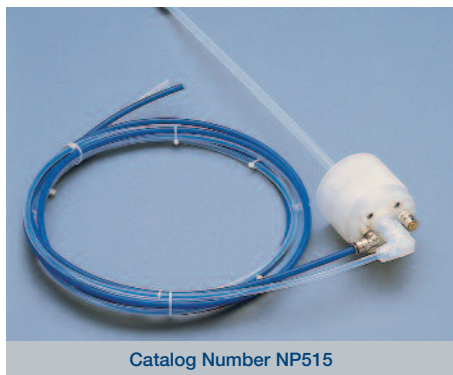
## ABBREVIATION GUIDE

HDPE	High-Density Polyethylene
PTFE	Polytetrafluoroethylene
PFA	Perfluoroalkoxy
FEP	Fluorinated Ethylene Propylene
NPT	National Pipe Thread

# NOWPak® II Dispensing Options

Pressure dispense connectors can easily attach stainless steel NOWPak II containers to DNA synthesizers, peptide synthesizers and other equipment using continuous pressure to supply solvent.

The HDPE NOWPak overpacks are not recommended for continuous pressurization, only intermittent pressurization of less than 10 psig.



Catalog Number NP515

## General Purpose Pressure Dispense Connector

Catalog Number NP515

This connector allows for general purpose dispensing of solvent from NOWPak II containers using up to 15 psig pressure. It consists of:

- A cap connector with a 1/4" PFA elbow solvent fitting, a 1/4" inert gas elbow pressure fitting and a 15 psig pressure relief valve.
- An FEP diptube with a 40-micron stainless steel frit to prevent drips while changing containers.
- A 10' harness of 1/4" FEP solvent tubing and 1/4" nylon pressure tubing.



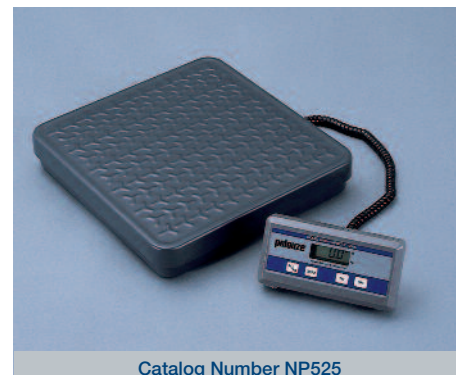
Catalog Number NP516

## Biotech Pressure Dispense Connectors

Catalog Numbers NP516, NP529, and NP538

Solvent can be dispensed at pressures less than 15 psig from NOWPak II containers connected directly to DNA and peptide synthesizers. Each adapter consists of:

- A pressure dispense cap with PFA solvent fitting, an inert gas pressurization fitting and a 15 psig pressure relief valve.
- An FEP diptube with a 40-micron stainless steel frit to prevent drips while changing containers.
- NP516 – a 5' harness of 1/8" FEP tubing for solvent and inert gas pressure delivery with 4" flared fittings (1/4" – 28 thread) that attach to the instrument.
- NP529 – a 4000 mm harness of 2.7 mm PFA tubing for solvent and inert gas pressure delivery with M6 fittings that attach to the instrument.
- NP538 – a 10' harness of 4.6 mm PFA tubing for solvent and inert gas pressure delivery.



Catalog Number NP525

## Digital Scale with Remote Readout Catalog Number NP525

Solvent levels in NOWPak II containers are easily monitored using this load cell. The scale can be operated on AC power or a 9V DC battery. It features:

- A 12 1/4" x 12" x 2 1/4" platform.
- A digital remote readout with a 5' cord.



Catalog Number NP536

## Cascading Dispenser

Catalog Number NP536

Two stainless steel NOWPak II containers can be connected in a series using the Cascading Dispenser for a 40-liter reservoir of solvent. It comes with:

- Two pressure dispense caps.
- 1/8" PFA tubing for pressurization and solvent dispensing.



Catalog Number NP523

## Stainless Steel Tilt Cradle

Catalog Number NP523

When using the NP503 PTFE Pour Spout Closure, this metal cradle aids pouring solvent from 20L NOWPak containers. Due to overpack size differences, the NP523 Tilt Cradle can be used with HDPE 20L NOWPak containers only.



Catalog Number NP503

## PTFE Pour Spout Closure

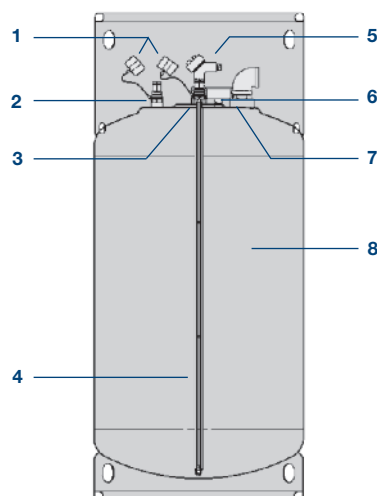
Catalog Number NP503

The PTFE Pour Spout Closure connects to the neck of the NOWPak liner for inert, splashless pouring by either lifting or using the NP523 Tilt Cradle. An attached cap allows the container to be resealed after each use without detaching the pour spout.

# Stainless Steel Pressure Dispense System (SSPDS)

The Honeywell Burdick & Jackson Stainless Steel Pressure Dispense System (SSPDS) provides an environmentally responsible way to safely meet your large-volume, high-purity solvent needs. These customer-dedicated 56L, 200L and 1250L containers are reusable and generate virtually no packaging waste. Dispensing from a fully sealed, break-resistant system reduces employee exposure and increases the useful shelf life of solvents. You can also eliminate solvent pumps, another potential contaminant source, since the SSPDS is pressurized by inert gas.

Figure 6. SSPDS Container Diagram



1. Quick-connect coupling protective caps
2. Male inert gas quick-connect coupling
3. Male solvent quick-connect coupling
4. Solvent dip tube
5. Optional level sensor
6. Pressure gauge
7. Pressure relief valve
8. 304 or 316 stainless steel container body

## Burdick & Jackson Solvents in SSPDS Containers

B&J Brand® and Burdick & Jackson BioSyn® high-purity solvent lines are both available packaged in SSPDS containers. Each SSPDS container comes with a Certificate of Analysis printed on the product label.

## SSPDS Components

The Stainless Steel Pressure Dispense System is engineered for shipping, storing and dispensing high-purity solvents. Each system feature (Figure 6) maintains solvent purity and meets UN, US DOT and OSHA standards for flammable and combustible liquids. The entire system of the 56L and 200L containers has received Factory Mutual Research Corporation approval, ensuring that it meets all stated safety, quality and performance specifications.

- The 56L, 200L and 1250L SSPDS containers are made from 304 or 316 stainless steel, specially cleaned to eliminate all contamination prior to solvent filling.

- Tamper-evident wires and seals help to verify the delivery of high-quality, uncontaminated Honeywell Burdick & Jackson solvent from each SSPDS container.
- Each container has an appropriately sized National Fire Prevention Association (NFPA) approved pressure relief valve.
- Specially keyed inert gas and solvent quick-connect couplings ensure minimal air inclusion and solvent loss when connecting and disconnecting the container at operating pressure (<15 psig).
- Thoroughly cleaned PTFE-lined hoses and non-contaminating solvent dispensers deliver solvent directly to instruments and dispensing stations.
- In addition to system installation recommendations, Honeywell Burdick & Jackson offers regulatory assistance, training on safe container usage and a convenient round-trip shipping program.



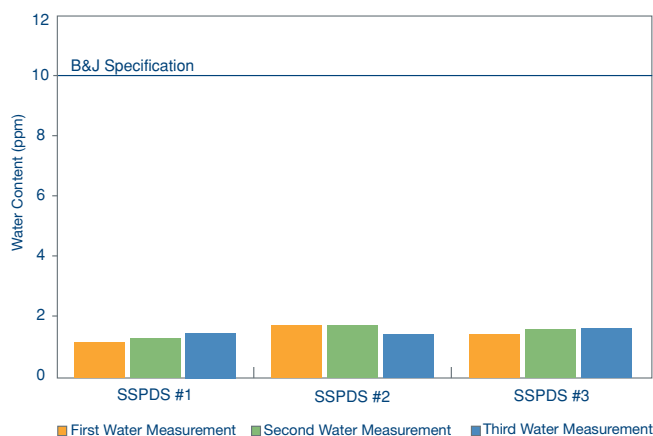
Disposing of fifty 4L glass bottles, 12.5 cardboard cartons and 12.5 box inserts is more time-consuming and generates more packaging waste than simply returning a single 200L SSPDS container for refilling with Honeywell Burdick & Jackson high-purity solvent.

## High-Purity SSPDS Solvents

Solvent dispensed from Honeywell Burdick & Jackson SSPDS containers meets or exceeds Burdick & Jackson's already demanding glass bottle specifications. Unlike a glass bottle, which must be opened, SSPDS containers are a sealed system, protecting solvent from atmospheric moisture and maintaining extremely low water content. Three 200L SSPDS containers (Figure 7) were filled with the same BioSyn® low-water content acetonitrile lot. Each container was sampled and analyzed for water content in triplicate using coulometric Karl Fischer titration. The chart in Figure 7 not only demonstrates that Honeywell Burdick & Jackson can reproducibly fill ultra-low-water-content solvent into SSPDS containers, it also validates our sampling techniques and shows that the SSPDS dispenses solvent without introducing water contamination.

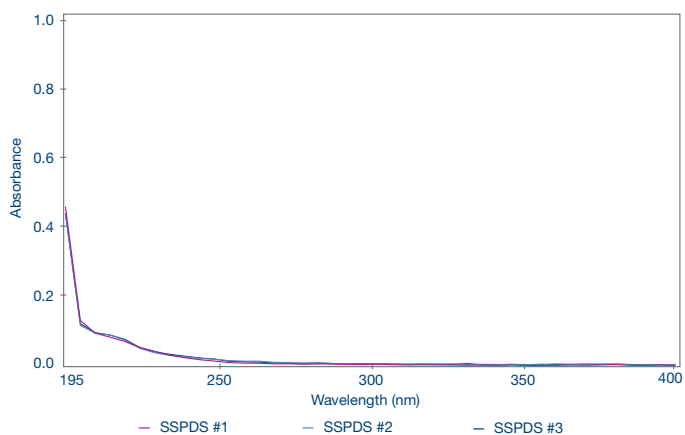
An excellent indicator of solvent purity is UV absorbance. Again, three 200L SSPDS containers were filled with the same BioSyn acetonitrile lot. A UV scan of solvent from each container was recorded using a 5 cm path length quartz cell (Figure 8). The UV cutoffs for each container are identical, and the three UV curves are virtually the same.

Figure 7. Water Content for Consecutively Filled Honeywell Burdick & Jackson BioSyn® Acetonitrile SSPDS Containers



Multiple water measurements from three consecutively filled 200L BioSyn low-water-content acetonitrile SSPDS containers (Catalog Number BC017-200) demonstrate the reproducibly low water content that you can expect from solvent packaged in a SSPDS container.

Figure 8. UV Spectra for Consecutively Filled Honeywell Burdick & Jackson BioSyn Acetonitrile SSPDS Containers



BioSyn low-water-content acetonitrile UV spectra in 5 cm path length quartz cells are almost identical for three consecutively filled 200L SSPDS containers. (Catalog Number BC017-200).

## SSPDS Solvent Stability Studies

Laboratory stability studies (Figures 9–12) confirm SSPDS containers maintain solvent purity over time. To preserve solvent integrity, the SSPDS container is constructed from specially cleaned 304 or 316 stainless steel and all solvent flow path surfaces are 304 or 316 stainless steel, polytetrafluoroethylene (PTFE) or fluoroelastomer. Unlike non-pressurized drums, which breathe and allow contaminants such as water and air to enter, SSPDS containers and fittings are designed for a pressure-tight seal. This inert, pressurized dispensing system delivers solvent that is:

- Exceptionally low in water content for DNA manufacturing and other water-sensitive applications.
- Free from peaks detected by GC-ECD and GC-FID for pesticide residue analysis.
- Highly UV transparent for analytical, preparative and process liquid chromatography.
- Protected from airborne impurities and oxidation by the inert gas blanket inside the container.

Figure 9. Elemental Analysis of Hexane Stored in SSPDS container for 6 months

Metal	Limit	Result
Aluminum	0.05 ppb	not detected
Antimony	0.05 ppb	not detected
Arsenic	0.10 ppb	not detected
Barium	0.01 ppb	not detected
Beryllium	0.05 ppb	not detected
Bismuth	0.05 ppb	not detected
Boron	0.10 ppb	not detected
Cadmium	0.01 ppb	not detected
Calcium	0.10 ppb	not detected
Chromium	0.05 ppb	not detected
Cobalt	0.01 ppb	not detected
Copper	0.05 ppb	not detected
Gallium	0.01 ppb	not detected
Germanium	0.05 ppb	not detected
Gold	0.10 ppb	not detected
Iron	0.10 ppb	not detected
Lead	0.05 ppb	not detected
Lithium	0.05 ppb	not detected
Magnesium	0.05 ppb	not detected
Manganese	0.05 ppb	not detected
Molybdenum	0.05 ppb	not detected
Nickel	0.05 ppb	not detected
Niobium	0.05 ppb	not detected
Potassium	0.10 ppb	not detected
Silver	0.05 ppb	not detected
Sodium	0.10 ppb	not detected
Strontium	0.01 ppb	not detected
Tantalum	0.05 ppb	not detected
Thallium	0.01 ppb	not detected
Tin	0.05 ppb	not detected
Titanium	0.05 ppb	not detected
Vanadium	0.05 ppb	not detected
Zinc	0.05 ppb	not detected
Zirconium	0.01 ppb	not detected

Calcium, iron and potassium were analyzed by graphite furnace atomic absorption spectroscopy (GFAAS). All other elements were analyzed by inductively coupled plasma emission spectroscopy (ICP-MS).

Figure 10. B&J Brand® Acetonitrile UV in an SSPDS Container after 5 Months

Test	Original Lot Analysis	After 5 Months
Water by Karl Fischer Titration	0.001%	0.001%

**Metals**

An ICP analysis for the following metals was done on B&J Brand Acetonitrile UV packaged in a SSPDS container for over 5 months. None of the following metals were detected (detection limit 10 ppb):

Aluminum	Barium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper
Gold	Iron	Magnesium	Manganese	Nickel	Strontium	Tin	Zinc

Figure 11. Acetonitrile UV Absorbance Measure in a 5cm Cell

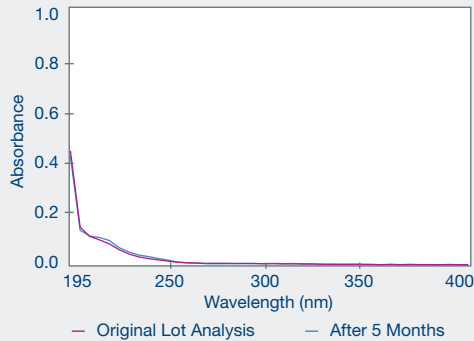
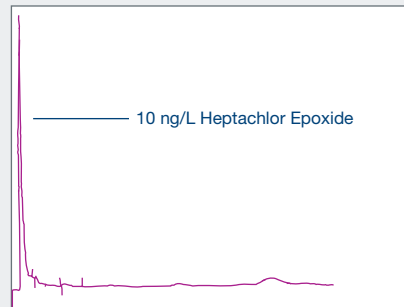


Figure 12. Acetonitrile GC-ECD Chromatogram After 5 Months



The test results shown (figures 10, 11 and 12) indicate no contamination in B&J Brand® Acetonitrile UV (Catalog Numbers CS015-56 and CS015-200) after being stored 5 months in a SSPDS container.



**Approved**

## Factory Mutual Research Corporation Approved System

The Honeywell Burdick & Jackson® 56L and 200L SSPDS have successfully undergone the Factory Mutual Research Corporation's (FMRC) design verification and audit process for flammable liquid containers under pressure (Report J.I. 1Y2A9.AF). FMRC is an independent laboratory that tests products for conformance to specific safety, quality and performance standards. FMRC's audit process includes a survey of the manufacturing facility in order to document the quality control parameters under which the product is manufactured. FMRC approval is nationally recognized by insurance underwriters and federal regulatory agencies such as OSHA.

## SSPDS Container Body

The SSPDS container is constructed from 14 gauge 304 or 316 stainless steel. The container has a hydrostatically tested proof pressure of 900 kPa or 132 psig. It passes DOT/UN Packing Group I drop testing for highly hazardous material in a closed-head steel drum—dropping the container bearing a 566 lb. load with all components in place from a height of six feet onto a solid surface. The Honeywell Burdick & Jackson SSPDS container also meets OSHA 29 CFR 1910.106 standards covering the storage of up to 60 gallons (227 liters) of flammable or combustible liquid.

## SSPDS Pallet With Feet

The 200L SSPDS is available with pallet feet for use with a pallet jack.



# Stainless Steel Pressure Dispense System (SSPDS) (cont)

## Tamper-Evident Wires and Seals

Tamper-evident wires secure all ports on the Honeywell Burdick & Jackson SSPDS container to ensure solvent integrity and traceability during container shipping and storage. The seal condition should be verified upon container receipt and the seals removed only when ready to dispense solvent.

## Built-In Pressure Gauge

A stainless steel pressure gauge with an easy-to-read dial allows continuous container pressure monitoring. All Honeywell Burdick & Jackson SSPDS containers are filled and shipped with a 3–5 psig blanket of inert gas. Along with the tamper-evident wires and seals, the pressure gauge provides verification that positive pressure was maintained during transit and solvent quality has not been compromised.

## Resealing Pressure Relief Valve

The Honeywell Burdick & Jackson SSPDS is an exceptionally safe bulk delivery system. An appropriately sized pressure relief valve on the SSPDS maintains safe container pressure levels during gas regulator misadjustment or unprotected fire exposure. SSPDS emergency venting complies with ASME Boiler and Pressure Vessel

Code Section VIII specifications (120% of container design pressure) and is sized to provide venting capacity in excess of that determined by the heat absorption and vapor generation formulas specified in NFPA 30.

The SSPDS pressure relief valve minimizes danger of explosion associated with non-vented or inadequately vented storage containers during fire exposure. In contrast to the Honeywell Burdick & Jackson SSPDS pressure relief valve, burst disks or undersized relief valves on other pressurized solvent containers represent a serious hazard. A boiling liquid expanding vapor explosion can occur when an insufficiently vented vessel contains a superheated liquid. Because the liquid is heated above its normal boiling point, flash vaporization occurs. This rapid gas generation creates pressures high enough to destroy the vessel.

When a burst disk ruptures to vent excess pressure, solvent in the container becomes easily accessible to fire. The pressure relief valve is spring loaded and automatically reseals once internal container pressure drops below 30 psig when cooled by a fire hose or sprinkler. Its threaded valve opening can be connected to a suitable vent system for solvent and vapor removal without providing additional fuel to a fire.



Figure 13. Top View of SSPDS

1. Resealing pressure relief valve
2. Built-in pressure gauge
3. Optional level sensor port
4. Male solvent quick-connect coupling
5. Tamper-evident wires and seals
6. Male inert gas quick-connect coupling

## SSPDS Dispensing and Accessories



## SSPDS Quick-Connect Couplings

Solvent is dispensed from Honeywell Burdick & Jackson® SSPDS containers using color-coded and keyed quick-connect couplings. Since they are developed specifically for high-purity solvents, all internal quick-connect coupling surfaces are 316 stainless steel or polytetrafluoroethylene (PTFE). These rugged, highly reliable connectors maintain solvent purity and are pressure rated to 150 psig.

The flat-faced male and female quick-connect couplings automatically reseal upon disconnecting and can be easily wiped clean to remove any particles picked up from the surroundings (Figure 14). Their automatic shutoff feature allows hoses to be connected or disconnected from the pressurized SSPDS container without requiring manual venting. The high quality construction of the quick-connect couplings eliminates both leakage and the need for any secondary container shutoff valves. Compared

to common Swagelok fittings (Figure 15), the flat-faced design of the Honeywell Burdick & Jackson quick-connect coupling minimizes liquid loss upon decoupling from the SSPDS container. Air inclusion of less than 0.01 mL during coupling (Figure 16) virtually eliminates moisture contamination and makes purging solvent lines unnecessary when changing containers.

The potential for incorrect connection and solvent cross-contamination is minimized when using SSPDS color-coded quick-connect couplings.

## Epsilon Coupling Half Catalog Number CA1250

The Epsilon Dry-Break couplings on the 1250L SSPDS containers maximize throughput with a straight-through ball-valve design. These couplings also minimize spillage and increase worker safety with automatic safety interlocks.



Catalog Number CA1250

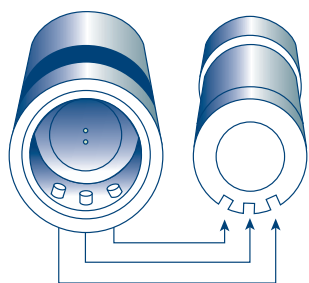


Figure 14. SSPDS Quick-Connect Coupling Diagram.

## Solvent Spillage

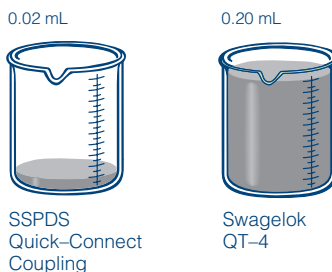


Figure 15. SSPDS quick-connect couplings release one-tenth the solvent that Swagelok QT-4 fittings do when solvent containers are disconnected.

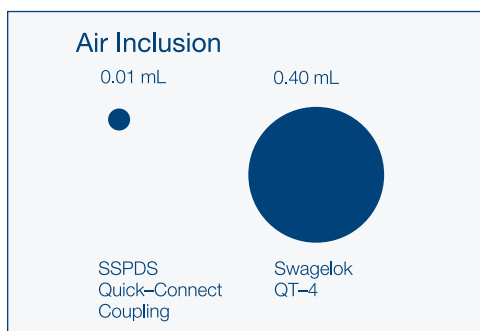


Figure 16. Swagelok QT-4 fittings incorporate 40 times more air upon connection than SSPDS quick-connect couplings.



SSPDS quick-connect couplings maintain solvent purity while reducing vapor emission in the workplace.

## Specially Cleaned SSPDS Hoses

Honeywell Burdick & Jackson uses a proprietary cleaning process to remove trace contaminants from the hoses attached to female quick-connect couplings. The cleaning process enables these hoses to maintain even pesticide residue analysis solvent standards. Burdick & Jackson can provide hoses cut to any desired length in two diameters, 1/4" and 1/2". SSPDS hoses are pressure rated to 1500 psig, and the inert PTFE inner tubing is protected from damage and kinking by a flexible stainless steel over braid. The hose includes two sets of end fittings—one set to attach the inert gas or solvent female quick-connect coupling and another set to connect the hose to either an inert gas source or a solvent dispenser.

## Pressure (<15 psig) Dispensing

The SSPDS is capable of delivering much greater flow rates than are normally used in laboratory and manufacturing dispensing (Figure 17). Because the SSPDS does not

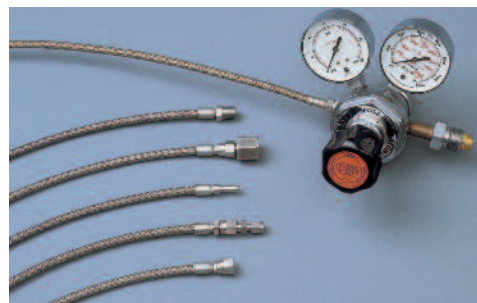
necessitate using excessive pressure, safety and degassing problems are avoided. Most laboratory and manufacturing applications do not require SSPDS operating pressures to exceed 15 psig. For example, HPLC instruments typically use flow rates of 2 mL/min., a DNA synthesizer requires approximately 120 mL/min. and general dispensing into laboratory glassware or other vessels can safely be done only with a maximum flow rate of 2–3 L/min.

## SSPDS Solvent Dispensing Toggle Valve

Catalog Number CA0309 – 1/4" (pictured)  
Catalog Number CA0316 – 1/2"

For added convenience, a hand-held Solvent Dispensing Toggle Valve allows control of solvent flow with the touch of a finger. This toggle valve dispenser is non-contaminating and connects directly to a SSPDS solvent hose.

The Solvent Dispensing Toggle Valve with Swivel allows hand-held solvent dispensing using the 1/4" and 1/2" hose.

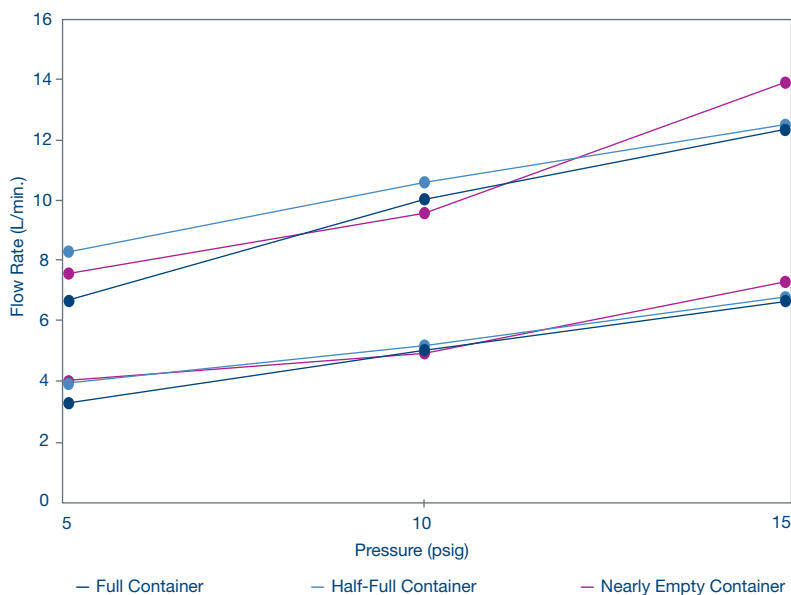


Burdick & Jackson can attach a wide range of end-fittings to your SSPDS inert gas hose for easy connection to gas regulators or manifolds.



SSPDS hoses are available in 1/4" and 1/2" diameters. Honeywell Burdick & Jackson recommends including an in-line swivel (Catalog Number CA0311) when using the 1/2" hose to increase flexibility when aligning the quick-connect coupling key pattern.

Figure 17. 1/4" and 1/2" Burdick & Jackson Hose Flow Rates



A 200L SSPDS container was filled with approximately 20°C water and pressurized with helium to 5, 10 and 15 psig. Flow rates for 1/4" and 1/2" hoses were measured at all three pressures when the container was full, half-full and nearly empty.



Each female SSPDS quick-connect coupling is attached to a PTFE hose encased in a flexible stainless steel outer braid to prevent hose damage and kinking during use.



Catalog Number CA0309

## Available SSPDS Hose Lengths

Catalog Number	Description
CA-5H8-JIC	5-foot hose (1/2 inch OD) with Female JIC
CA-5H8-NPT	5-foot hose (1/2 inch OD) with Male NPT
CA-5H8-STB	5-foot hose (1/2 inch OD) with Tube Stub
CA-5H4-JIC	5-foot hose (1/4 inch OD) with Female JIC
CA-5H4-NPT	5-foot hose (1/4 inch OD) with Male NPT
CA-5H4-STB	5-foot hose (1/4 inch OD) with Tube Stub
CA-10H8-JIC	10-foot hose (1/2 inch OD) with Female JIC
CA-10H8-NPT	10-foot hose (1/2 inch OD) with Male NPT
CA-10H8-STB	10-foot hose (1/2 inch OD) with Tube Stub
CA-10H4-JIC	10-foot hose (1/4 inch OD) with Female JIC
CA-10H4-NPT	10-foot hose (1/4 inch OD) with Male NPT
CA-10H4-STB	10-foot hose (1/4 inch OD) with Tube Stub
CA-15H8-JIC	15-foot hose (1/2 inch OD) with Female JIC
CA-15H8-NPT	15-foot hose (1/2 inch OD) with Male NPT
CA-15H8-STB	15-foot hose (1/2 inch OD) with Tube Stub
CA-15H4-JIC	15-foot hose (1/4 inch OD) with Female JIC
CA-15H4-NPT	15-foot hose (1/4 inch OD) with Male NPT
CA-15H8-STB	15-foot hose (1/4 inch OD) with Tube Stub
CA-20H8-JIC	20-foot hose (1/2 inch OD) with Female JIC
CA-20H8-NPT	20-foot hose (1/2 inch OD) with Male NPT
CA-20H8-STB	20-foot hose (1/2 inch OD) with Tube Stub
CA-20H4-JIC	20-foot hose (1/4 inch OD) with Female JIC
CA-20H4-NPT	20-foot hose (1/4 inch OD) with Male NPT
CA-20H8-STB	20-foot hose (1/4 inch OD) with Tube Stub

## Available SSPDS Accessories

Catalog Number	Description
CA0309	1/4" Toggle valve with swivel
CA0311	1/2" Swivel to facilitate alignment of female coupler with keyed male connector on container
CA0313	Installation kit for APB OligoPilot™ II (no hoses)
CA0315	Pelouze digital scale for 56L SSPDS containers
CA0316	1/2" Toggle valve with swivel

## ABBREVIATION GUIDE

JIC	37° Flare Fitting
NPT	National Pipe Thread
STB	Tube Stub
OD	Outside Dimension

## SSPDS Direct Instrument Connection

The Honeywell Burdick & Jackson SSPDS maintains solvent purity and low water content by connecting directly to synthesizers and other instruments. Because the SSPDS container serves as a large reservoir, instruments can run unattended longer and less time is spent changing solvent containers.

Honeywell Burdick & Jackson Technical Service can provide installation recommendations and

system components for delivering high-purity solvent to several instruments simultaneously. Dispensing systems can also include multiple SSPDS containers connected using a manifold. Honeywell Burdick & Jackson has a container switching mechanism to automatically change from an empty to a full container with no interruption in solvent delivery.



Sealed solvent dispensing directly into DNA synthesizers maintains the lowest possible water content. Solvent levels are monitored by an electronic level sensor.

## SSPDS Float-Type Level Sensors

Honeywell Burdick & Jackson also offers an electronic level sensor that determines liquid levels using float-type level switches. A float encircling a stationary stem is equipped with a permanent magnet. As the float rises or lowers with liquid level, the magnet within the float actuates reed switches within the stem. This design provides a consistent vertical accuracy of 1/8" with repeatability of no more than 1% deviation. A cable connecting a container to a Float Level Sensor Display Box will provide accurate digital readout of the liquid level. Two cables connecting two containers to a Liquid Level Sensor Control Box will provide accurate continuous digital and pictorial readout of the liquid level in both containers and can operate a solenoid valve to switch between empty and full containers.

## Float Level Sensor Control Box (shown with probes)

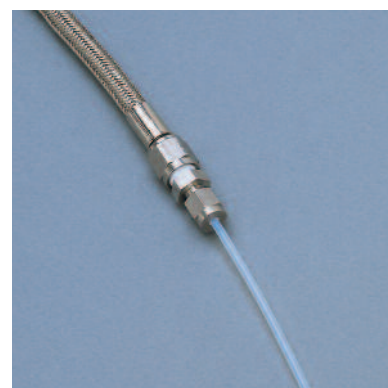
### Catalog Number CA0080LS

Float-type level sensor probe measures the liquid level in containers and sends the information to the control box for a continuous digital and pictorial readout of two containers. Control box can operate a solenoid valve to switch between empty and full containers.

## Float Level Sensor Display Box (shown with probes)

### Catalog Number CA0081LS

Float-type level sensor probe measures the liquid level in containers and sends the information to the display box for a continuous digital readout.



Connections between instrument tubing and SSPDS hoses are dripless and air-tight.



Catalog Number CA0080LS



Catalog Number CA0081LS

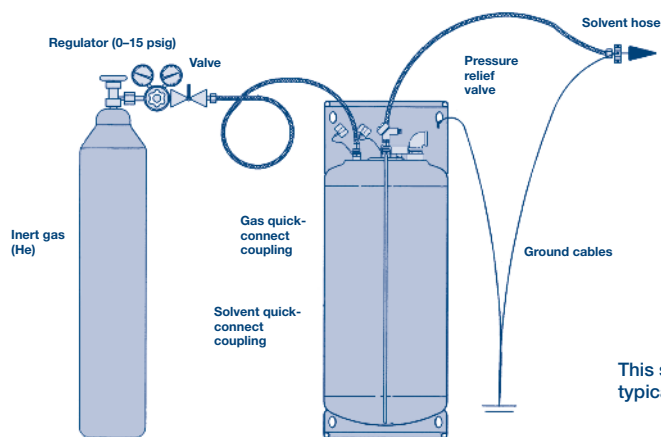
## SSPDS Installation and Operation

1. When you receive a Honeywell Burdick & Jackson SSPDS container, verify the serial number. Each container is tracked by serial number and dedicated to a single customer and solvent.
2. Using a suitable cart (such as Catalog Number CA2375), move the unit to the area where it will be used. Ensure that the SSPDS is properly secured while transporting to prevent accidental loss of control and possible personnel injury.
3. Place the container on a level surface to ensure stability. Clamp a ground wire to the main body of the container. The originating end of the ground wire must be attached to a proper ground per standard facility procedure.
4. Remove the protective plastic lid from the chime and inspect the condition of the tamper-evident wiring and seals. Note any obvious signs of external container damage. Keep the envelope containing two tamper-evident wires for securing the male coupling caps and three plastic ties for reattaching the protective shipping lid when returning the empty container.
5. After the SSPDS container has equilibrated to room temperature, verify that the container pressure gauge registers positive pressure, ensuring the solvent has remained under an inert gas blanket and no contamination has occurred during shipping.
6. Cut the tamper-evident wires on both the inert gas and solvent male quick-connect coupling caps. Push down lightly on the cap tops to remove their security pins, and lay the pins inside the container's protective chime.
7. If a quality control sample is required prior to using the solvent, connect the SSPDS Sampling Adapter (Catalog Number CA000-SA) to the male solvent quick

connect coupling. The gas pressure inside the SSPDS when it is shipped should be sufficient to withdraw at least four liters of liquid from the container.

8. To connect the green male inert gas quick-connect coupling to the green female quick-connect coupling, wipe both flat-faced surfaces with a clean, lint-free cloth and align the female coupling pins with the male coupling grooves, pushing straight down until the couplings click. Honeywell Burdick & Jackson recommends using an inert gas, preferably helium, with a purity level of 99.9999% and very low water content. Make certain the pressure regulators used are designed for high-purity gas. The regulators must be oil-free with stainless steel components and inert seals to avoid introducing contaminants.
9. Connect the male solvent quick-connect coupling to the female solvent coupling as in step 8. Each solvent has a unique key pattern and color code to prevent cross-connection.

Once the inert gas pressure line and the solvent dispense line are connected, pressurize the container to the desired operating pressure by first opening the gas pressure regulator and then opening the regulator shutoff valve.



A sampling adapter is available for withdrawing a QC sample from the SSPDS container.



SSPDS containers are shipped with sufficient pressure to allow QC sampling prior to connecting the inert gas source.



This top view of a SSPDS container shows the connection of the inert gas and solvent quick-connect couplings.

This schematic diagram shows a typical SSPDS lab installation.

## SSPDS Round-Trip Shipping Program

The Honeywell Burdick & Jackson® SSPDS is not only safe and easy to use, but also convenient to return for refilling. Burdick & Jackson has established a round-trip shipping program that simplifies container return. A common carrier has been preselected based on their ability to handle the SSPDS container and the best available rate to you. Under this program, Burdick & Jackson provides the return bill of lading and attaches it to the SSPDS container. When the container is empty, complete the bill of lading and call the carrier designated on the shipping papers. Round-trip shipping costs are added to your solvent invoice. This program expedites empty container return and helps ensure an uninterrupted solvent supply.

## SSPDS Container Return

Only a few easy steps are required to prepare the SSPDS container for return and refilling at Burdick & Jackson.

1. Remove as much solvent as possible from the container, verifying that inert gas pressure still remains inside. To meet DOT/UN regulations, the pressure must be under 10 psig. Honeywell Burdick & Jackson checks the pressure gauge when receiving containers to make certain no contamination has occurred during shipping.
2. Disconnect the female inert gas and solvent quick-connect couplings and hoses by pulling back on the coupling sleeve. The coupling will spring apart. Disconnect the grounding wire.
3. Replace the male quick-connect coupling caps, inserting the security pins to hold them in place. Attach the tamper-evident wires and crimp the seals that are provided with the shipping papers in the SSPDS return envelope.
4. Replace the plastic lid to protect the container fittings during shipment. Burdick & Jackson provides ties to securely attach the lid to the container chime.
5. When you are ready to have a container picked up, simply call the carrier designated on the shipping papers.



Honeywell Burdick & Jackson has specially designed a cart to conveniently and safely move 200L SSPDS containers around tight areas and over uneven surfaces such as door frames and ramps.

## Your SSPDS Fleet

To eliminate cross-contamination and provide traceability, each SSPDS container is dedicated to a single customer and a single solvent. Every container is tracked by serial number, with Honeywell Burdick & Jackson keeping complete records of handling and filling. The SSPDS container fleet size necessary for your application will be determined based on your solvent volume requirements, the shipping time to and from your facility, your on-site storage capacity and your desired safety stock level.

## SSPDS System Support

Honeywell Burdick & Jackson's technical staff will assist you in establishing a SSPDS installation plan that meets your storage and dispensing needs. Together, we will:

- Review your application in detail.
- Assess your solvent purity requirements.
- Discuss your anticipated solvent usage patterns and volume.
- Determine the number of SSPDS containers in your fleet.
- Establish plumbing requirements for system hook-up.
- Review safety and regulatory issues.
- Address any special delivery arrangements such as dockside lift gate service.

## Container Specifications



	56L SSPDS	200L SSPDS	1250L SSPDS
<b>Volume</b>	56 liters 14.8 gallons	200 liters 52.8 gallons	1250 liters 330.3 gallons
<b>Approximate Weight When Empty</b>	50 lbs. 22.7 kg	107 lbs. 48.5 kg	760 lbs. 345 kg
<b>Approximate Full Weight When Containing Methanol</b>	147 lbs. 67 kg	455 lbs. 206 kg	2710 lbs. 1229 kg
<b>DOT/UN Packaging Specification</b>	UN1A1/X2.8/900	UN1A1/X2.0/900	UN31A/Y

## Custom Packaging

Honeywell Burdick & Jackson® offers custom solvent dispensing options to support multiple applications, including:

- Custom configured connections and fittings to each of our returnable containers.
- Direct connection from a Burdick & Jackson container to a custom fitted line which feeds into a production line, vessel or instrument.

Working closely with end-users has allowed Burdick & Jackson to develop a wide range of dispensing capabilities. The flexibility to retrofit connections onto Burdick & Jackson solvent hoses creates an opportunity to expand your range while maintaining solvent purity to your dispensing point.

Providing Burdick & Jackson with your optimal end-result allows us to provide you with the custom solution that meets your specific needs. Examples include:

- 1) Solvent hose reels mounted above or near a dispensing point which receive solvent from a remote location being fed through our PTFE hose with a stainless steel over braid to prevent damage and kinking during use.
- 2) Custom fitted stainless steel elbow applied to our Pressure Dispense Cap Connector to allow for more aggressive use in production environments that may require the container and dispensing line to be moved from point A to point B and back again.
- 3) Custom lengths of solvent lines connected to a SSPDS container which feed into hard-plumbed stainless steel solvent lines which will provide solvent to a remote dispensing point in a fume hood for safe handling and venting of solvents.

## Custom Connections

Honeywell Burdick & Jackson's Technical Service will help with custom installations. Examples of custom installations are:

- 1) SSPDS container with multiple point-of-use dispense points for filling glassware in hoods.
- 2) SSPDS container connected to multiple hose reels in a production facility.
- 3) SSPDS or NOWPak container connected to multiple different brands of instruments that require the use of solvent. Pumps or pressure feed, many tubing diameters, DNA/RNA synthesizers, HPLC instruments, etc.
- 4) Two containers connected to a switch system that provides an uninterrupted supply of high purity solvents or DNA/RNA Reagents.

The above examples are just a few of the custom installations completed since our introduction of NOWPak & SSPDS containers into the solvent market. Our Technical Service cannot provide the engineering input but will work with your engineers to pick the correct construction materials and provide other expertise to minimize the likelihood of contamination.



Although glass bottles are clean, dependable containers for high-purity solvents, they present serious safety hazards when dropped. By containing solvent spills and broken glass, the Honeywell Burdick & Jackson HandleLock B-Jacket protects people and property from a broken bottle of flammable or hazardous liquid.

The Honeywell Burdick & Jackson® HandleLock® B-Jacket® provides convenient secondary containment for 4L solvent bottles.

## Prevents Breakage and Minimizes Spills

The B-Jacket acts as a shock absorber to help prevent bottle breakage resulting from minor jolts such as hitting the edge of a lab bench or knocking one bottle against another. If a bottle does break, the B-Jacket helps contain glass shards and solvent spills, protecting lab personnel from broken glass and solvent exposure.

## Meets OSHA Recommendations for Secondary Containment

The B-Jacket is a virtually break-proof secondary container for the storage and handling of 4L solvent bottles as recommended by OSHA Laboratory Standards (29 CFR 1910.1450 Appendix A).

## Shows Solvent Labels

The product label can be seen through the polyethylene bottle cover. Solvent users do not need to remove the bottle from the B-Jacket to identify the type of solvent it contains.

## Easy-to-Use HandleLock® Mechanism

The top of the B-Jacket securely locks to the bottom and will not disengage if the container is dropped. The lugs on the handle audibly click into place, indicating that the B-Jacket is securely closed.

## Environmentally Responsible

Because most recycling programs require the separation of glass and plastics, safety-coated bottles pose recycling problems. The durable, solvent-resistant construction of the B-Jacket allows long-term reuse with recyclable glass bottles.

## Does Not Contaminate High-Purity Solvents

The PVC coating process may contaminate safety-coated bottles, rendering them unsuitable for high-purity solvents. The B-Jacket has no effect on solvent quality.

## Cost Effective Alternative to Safety-Coated Bottles

The small upfront investment in a re-usable B-Jacket is a cost effective alternative to the recurring expense of one-time use PVC safety-coated bottles.



Catalog Number S1337-20